

ProgBlog 19
2014

Breaking the Future Barrier

By Michael Lee

Barriers to progress may be physical, psychological, social, conceptual, and technological or a combination of any of these limits.

When Roger Bannister ran the first sub-four-minute mile on May 6th 1954 in Oxford (his time was 3 min 59.4 sec.), the barrier was primarily physical, although he certainly had to overcome any mental blocks associated with achieving what had never been done before. When test pilot Charles "Chuck" Yeager broke the sound barrier on October 14th, 1947, flying the X-1 at Mach 1.07 while soaring at an altitude of 45,000 ft., he shattered at once physical, technological and psychological barriers, all while nursing two broken ribs. When Professor Chris Barnard performed the first human heart transplant after midnight on December 3, 1967 at Groote Schuur Hospital, highly dependent on the heart-lung bypass machine, he pushed forward life-extending surgery to a new level and established, among other things, the acceptability of using transplanted organs of brain-dead donors. And when Neil Armstrong became the first human being to step onto the surface of another heavenly body during the Apollo 11 lunar landing of July 21st, 1969, he had over 400,000 individuals and the new technologies of liquid fuel rockets and computer-guided navigation systems to thank for this unforgettable moment in history when the space barrier was decisively broken.

It's improvements in techniques and technologies, as well as in human capacities, which enable such breathtaking achievements in breaking records and barriers. We continue to celebrate advances of this daring and symbolic kind long after they happen.

In our area of study, and in society at large, there's a future barrier to overcome. It's the ingrained belief at different levels that the future is impenetrably "dark" and cannot be known with any degree of accuracy, if it even exists at all. This is primarily a conceptual barrier and one which is far from insurmountable.

The future barrier isn't a physical barrier because the space-time continuum shows that time is part of space, that it's a physical dimension of real change. The future's existence is demonstrable in terms of the principle of time's continuity, linking past, present and future in one endless flowing forward of time and of the world-in-time. There's a continuity of space-time.

Nor is the future barrier primarily a technological issue, although large-scale data processing does significantly increase our capacity to understand the future.

In my view, the future barrier is a combination of self-imposed conceptual, social and psychological limits. We don't need a computer or an ace test-pilot and his X-1 to break the future barrier. It may be argued that a straightforward paradigm shift would do the trick, to shift the speculative study of the future towards a science of the future employing systematic methods for mass production of real foreknowledge.

Epistemologically, we can explore the future by using *a priori* inductions based on the principle of causation. When astronaut Michael Collins piloted the Command Module of Apollo 11 he wrote that it was Sir Isaac Newton who was steering the spaceship across the quarter of a million miles of space between earth and moon, not him. The laws of nature are as true for the future as they were in the past.

The spaceship which will carry us across the future barrier is the scientific method itself, backed up by a profound and extensive body of knowledge in the natural and social sciences. In addition, we have the decision-making capacity provided by the logic of probability theory. We use induction to ensure we make prognostic statements about the future based on known emerging realities and we use deduction to check that what we forecast is in keeping with a substantial body of established theoretical knowledge. We use probabilities to estimate the likelihood of these emerging realities evolving as we foresee them, with 100% likelihood representing certainty itself.

Such a systematic approach could turn futurology into a leading social science within a decade.

Physics has established that there's no light barrier because nothing, and no one, can travel faster than the speed of light, not even Chuck Yeager or the Saturn V rocket that launched Apollo 11 on its historic mission.

But there is a future barrier. Societies feel extremely uncertain about the future.

Yet we are only one paradigm shift away from breaking the future barrier.